CLAIMS:

1. A method of forming a catalyst body, comprising:

forming a first layer of hemispherical grain polysilicon over a substrate; and

oxidizing at least a portion of said first layer to form a second layer of silica over said substrate.

2. The method of claim 1, further comprising depositing a catalyst material over said silica layer.

3. The method of claim 1, wherein said second layer is oxidized using thermal oxidation.

4. The method of claim 3, wherein said oxidizing is performed at a temperature within the range of about 350 to about 750 degrees C.

5. The method of claim 4, wherein said oxidizing is performed for a period of about 1 to about 10 minutes.

6. The method of claim 5, wherein said oxidizing is performed for a period of about 1 to about 5 minutes.

7. The method of claim 4, wherein said oxidizing is performed at a temperature within the range of about 400 to about 500 degrees C.

8. The method of claim 2, wherein said method further comprises annealing said catalyst material.

9. The method of claim 8, wherein said annealing produces at least one cluster of said catalyst material.

10. The method of claim 2, wherein said method further comprises forming a nitride layer over said silica layer and depositing said catalyst material over said nitride layer.

11. The method of claim 10, wherein said nitride layer is silicon nitride and is formed from a nitrogen-containing compound.

12. The method of claim 11, wherein said nitride layer is about 1 to about 500 Angstroms in thickness.

13. The method of claim 11, wherein said catalyst material is at least one member selected from the group of transition metals.

14. The method of claim 13, wherein said catalyst material is selected from the group consisting of ruthenium, palladium, platinum, and rhodium.

15. The method of claim 1, wherein said first layer is formed using LPCVD, CVD or RTCVD.

16. The method of claim 2, wherein said catalyst material is deposited using CVD or PVD.

17. The method of claim 1, wherein said first layer is formed by depositing amorphous silicon using CVD or LPCVD.

18. The method of claim 17, wherein said first layer is annealed following said deposition.

19. The method of claim 17, wherein said deposition is at a temperature within the range of about 400 to about 600 degrees C.

20. The method of claim 19, wherein said deposition is at a temperature within the range of about 450 to about 550 degrees C.

21. The method of claim 17, wherein said first layer is formed to a thickness of about 25 to about 200 Angstroms.

22. The method of claim 21, wherein said first layer is formed to a thickness of about 50 to about 100 Angstroms.

23. The method of claim 2, wherein said catalyst material is deposited to a thickness within the range of about 5 to about 500 Angstroms.

24. The method of claim 2, wherein said catalyst material is annealed to form a bump-like structure.

25. The method of claim 8, wherein said catalyst material is annealed to form a bump-like structure.

26. The method of claim 24, wherein said catalyst material forms an overhang region with respect to an underlying layer.

27. The method of claim 25, wherein said catalyst material forms an overhang region with respect to an underlying layer.

28. A method for forming a catalyst structure comprising forming a barrier layer over a layer of silica which has been formed from hemispherical grain polysilicon.

29. The method of claim 28, further comprising depositing a layer of catalyst material over said barrier layer so as to form a catalyst body.

30. The method of claim 29, wherein said barrier layer is a layer of silicon nitride which is formed so as to be continuous.

31. The method of claim 29, wherein said barrier layer is a silicon nitride layer which is formed so as to be discontinuous.

32. The method of claim 30, wherein said silicon nitride layer is formed using ammonia, ammonia plasma, and rapid thermal nitridation.

33. The method of claim 31, wherein said method further comprises annealing said catalyst material at a temperature within the range of about 200 to about 500 degrees C.

34. The method of claim 33, wherein said annealing is performed so that said catalyst material layer has a larger exposed surface area than just prior to said annealing.

35. The method of claim 34, wherein said annealing converts said catalyst material layer into a substantially crystalline layer.

36. The method of claim 28, wherein said silicon nitride layer is formed to a thickness within the range of about 1 to about 500 Angstroms.

37. A method of converting a portion of hemispherical grain polysilicon to silica without substantially flattening said grain, said method comprising heating said grain at a temperature within the range of about 350 to about 750 degrees C for a period not exceeding about 5 minutes.

38. The method of claim 37, wherein said conversion is performed at a temperature within the range of about 450 degrees to about 550 degrees C.

39. The method of claim 37, wherein said conversion yields a layer of silica over a remaining, non-oxidized portion of said polysilicon.

40. The method of claim 37, wherein said conversion produces a layer of silica which is within the range of about 20 to about 50 Angstroms in thickness.

41. The method of claim 40, wherein said conversion is performed for a period not exceeding about 1 to about 2 minutes.

42. The method of claim 37, wherein said method further comprises forming a catalyst body.

43. The method of claim 42, wherein forming said catalyst body comprises forming a layer of silicon nitride over said silica and then forming catalyst material over said silicon nitride layer.

44. The method of claim 43, wherein said layer of catalyst material is annealed so as to increase its surface area.

45. The method of claim 44, wherein said catalyst material is annealed to yield a bump-like layer.

46. A method of forming a catalyst body, comprising:

forming a first layer of hemispherical grain polysilicon over a substrate;

oxidizing at least a portion of said first layer to form a second layer of silica over said substrate;

forming a third layer of silicon nitride over said second layer;

depositing a catalyst material on said silicon nitride layer; and

annealing said catalyst material to form a catalyst body such that said catalyst material has a larger surface area than just prior to said annealing.

47. The method of claim 46, wherein said oxidizing is performed using oxygen plasma for a period not to exceed about 5 minutes.

48. A catalyst body, comprising:

a first layer of hemispherical grain polysilicon; and

a second layer of silica formed from at least a portion of said hemispherical silicon grain.

49. The catalyst body of claim 48, further comprising:

a barrier layer formed over said second layer of silica; and

a catalyst material layer formed over said third layer, wherein said catalyst material layer is formed from at least one member selected from the group consisting of Group VIII metals and zeolites.

50. The catalyst body of claim 49, wherein said silica layer is within the range of about 5 Angstroms to about 50 Angstroms in thickness.

51. The catalyst body of claim 50, wherein said silica layer is within the range of about 20 Angstroms to about 50 Angstroms in thickness.

52. The catalyst body of claim 49, wherein said barrier layer is a continuous nitride layer.

53. The catalyst body of claim 52, wherein said barrier layer is a discontinuous nitride layer.

54. The catalyst body of claim 52, wherein said nitride layer is a silicon nitride layer which is formed to a thickness within the range of about 1 to about 500 Angstroms.

55. The catalyst body of claim 49, wherein said catalyst material is at least co-extensive with said barrier layer.

56. The catalyst body of claim 53, wherein said catalyst material has an extending segment portion with respect to an underlying portion of said nitride layer.

57. The catalyst body of claim 56, wherein said extending segment portion forms an acute angle with respect to said silica layer.

58. The catalyst body of claim 53, wherein said catalyst material forms a layer that is at least about 10% more extensive than said nitride layer.

59. The catalyst body of claim 58, wherein said catalyst material layer is at least about 20% more extensive than said nitride layer.

60. The catalyst body of claim 59, wherein said catalyst material layer is annealed to form a structure having increased surface area.

61. The catalyst body of claim 60, wherein said extending segment portion is preserved after said annealing.

62. A sensor device, comprising:

a catalyst body formed over a substrate; and

a sensor unit coupled to said catalyst body and capable of detecting a catalyzed reaction at said catalyst body and providing a signal representing occurrence of said catalyzed reaction, wherein said catalyst body comprises:

a first layer of hemispherical grain polysilicon; and

a second layer of silica which has been formed from a portion of said polysilicon layer.

63. The device of claim 62, wherein said catalyst body further comprises a catalyst material layer formed over said layer of silica.

64. The device of claim 63, wherein said catalyst material layer is more extensive than said layer of silica.

65. The device of claim 63, further comprising a third layer of silicon nitride formed over said silica layer, and wherein said catalyst material layer is formed over said layer of silicon nitride.

66. The device of claim 65, wherein said catalyst material layer is more extensive than said layer of silicon nitride.

67. The device of claim 63, wherein said catalyst material is at least one member selected from the group consisting of Group VIII metals and zeolites.

68. The device of claim 63, wherein said catalyst material is at least one metal selected from the group consisting of rhodium, ruthenium, platinum and palladium.

69. The device of claim 64, wherein said catalyst material layer is non-wetting over said silica layer.

70. The device of claim 66, wherein said catalyst material layer is non-wetting over said silica layer.

71. The device of claim 63, wherein said device has sites in which catalyst material layer is bump-like in shape.

72. The device of claim 63, wherein said silica layer has a thickness which is within the range of about 20 Angstroms to about 50 Angstroms.

73. A catalyst body, comprising:

a first layer of hemispherical grain polysilicon; and

a second layer of silica formed from at least a portion of said hemispherical grain polysilicon.

74. The catalyst body of claim 73, further comprising a catalyst material layer formed over said second layer.

75. The catalyst body of claim 74, wherein said silica layer is up to about 50 Angstroms in thickness.

76. The catalyst body of claim 75, wherein said silica layer is within the range of about 20 Angstroms to about 50 Angstroms in thickness.

77. The catalyst body of claim 74, wherein said catalyst material layer has an extending segment portion with respect to an underlying portion of said silica layer.

78. The catalyst body of claim 77, wherein said catalyst material layer is comprised from at least one member selected from the group consisting of Group VIII metals and zeolites.

79. The catalyst body of claim 78, wherein said catalyst material layer is substantially crystalline.

80. The catalyst body of claim 78, wherein said catalyst body is a catalyst metal complex.

81. The catalyst body of claim 77, wherein said extending segment portion forms an acute angle with respect to an underlying portion of said silica layer.